

(SSE.1) Label the parts of this expression by filling in the blank spaces.

1. $5y(2x + 3m) - (3x + 2y + m)$

term coefficient

2. $6xy(4xy^2 + 3x - 27y - 10)$

Factor term constant

(APR.1)

3. In two or more **sentences**, describe how to identify like terms.

Like terms have identical variables.
 They also need to be the same exponent for all variables.

Simplify each expression and justify each step (describe/show/state each property used).

4.

Algebraic Work	Justification
$\left(\frac{3y^2}{(4y^3)^2}\right)^{-1}$ $= \frac{(4y^3)^2}{3y^2} = \frac{16y^6}{3y^2} = \frac{16y^4}{3}$	<ul style="list-style-type: none"> • First the neg 1 exponent property tells me to flip numerator & denominator. • Then I distribute the 2 exponent on the numerator. • The I simplify by subtracting the exponents that are divided

5.

Algebraic Work	Justification
$(25m^2 - 10mn + 8) - 2n(4m + 2) + (5m^2 - 10)$ $25m^2 - 10mn + 8 - 8mn - 4n + 5m^2 - 10$ $(30m^2 - 18mn - 4n - 2)$	<ul style="list-style-type: none"> • I first rewrite the entire expression after distributing the negative sign. • Then I can combine like terms.

6.

Algebraic Work	Justification
$(3t-1)(3t-1)(3t-1)+2$ $(9t^2-3t-3t+1)(3t-1)+2$ $(9t^2-6t+1)(3t-1)+2$ $27t^3-9t^2-18t^2+6t+3t-1+2$ $27t^3-27t^2+9t+1$	<ul style="list-style-type: none"> • I separate the binomials so I can multiply them all. • I Foil the first two binomials. • Then I can mult every term in the trinomial by every term in the binomial. • Then I combine like terms.

7.

Algebraic Work	Justification
$(h-3)(h^2+6h+2)$ $h^3+(6h^2)+2h-3h^2-18h-6$ $h^3+3h^2-16h-6$	<ul style="list-style-type: none"> • Here I multiply each term in the trinomial by each term in the binomial. • Then I combine like terms.

(APR.4)

Factor the expression and explain how you are using division to justify your answer.

8.

Algebraic Work	Justification
$\frac{6xy^2 - 3x^3y^5 + 12x^3y}{3xy}$ $\frac{6xy^2}{3xy} - \frac{3x^3y^5}{3xy} + \frac{12x^3y}{3xy}$ $3xy(2y - x^2y^4 + 4x^2)$	<ul style="list-style-type: none"> • The factor must have a number that divides evenly into all terms & the variable exponents are the smallest. • I divide each term by the GCF. • I put the GCF outside the parenthesis.

9.

Algebraic Work	Justification
$\frac{10g^3h^7 - 25g^5h^9 - 35g^4h^7}{5g^3h^7}$ $\frac{10g^3h^7}{5g^3h^7} - \frac{25g^5h^9}{5g^3h^7} - \frac{35g^4h^7}{5g^3h^7}$ $5g^3h^7(2 - 5g^2h^2 - 7g)$	<ul style="list-style-type: none"> • The Factor must divide into each term evenly. • I divide each term by the GCF. • The result goes inside the parenthesis & the factor goes outside.

Factor the expression by grouping.

a. $15m^2 + 11m + 2$ $\underline{6} \cdot \underline{5} = 15 \cdot 2 = 30$

$5m^2 + 5m + 6m + 2$ $\underline{6} + \underline{5} = 11$

$5m(3m+1) + 2(3m+1)$

$(3m+1)(5m+2)$

b. $x^2 - 14x + 45$

$x^2 - 9x - 5x + 45$

$x(x-9) - 5(x-9)$

$(x-9)(x-5)$

$-\underline{9} \cdot \underline{5} = 45$
 $-\underline{9} + \underline{-5} = -14$

10. Factor the expression and prove your factoring is correct by using distribution.

Factoring	Proof
$4m^2 + 25m - 21$ $-\underline{3} \cdot \underline{28} = -84$ $\underline{3} + \underline{25} = 28$ $4m^2 - 28m - 3m - 21$ $4m(m-7) - 3(m-7)$ $(m-7)(4m-3)$	$(m-7)(4m-3)$ $4m^2 - 3m + 28m - 21$ $4m^2 + 25m - 21$ Since the trinomial is the same as the original, I know my factors are correct.

Rate your understanding for each standard and explain what you can do to deepen your understanding of each standard.

SSE.1 1 2 3 4

APR.1 1 2 3 4

APR.4 1 2 3 4